CLAIMS

1. (Original) A method of providing orthogonal CDMA communication in a return link, comprising:

receiving a first pilot signal at a plurality of terminals;

deriving at least one transmit timing characteristic from the received first pilot signal, wherein deriving is performed within each of the plurality of terminals;

transmitting, at an assigned time, a pilot signal from each of the plurality of terminals in accordance with the derived at least one transmit timing characteristic;

receiving a control signal, the content of the control signal providing instructions to adjust the at least one transmit timing characteristic; and

adjusting, responsive to the control signal, the at least one transmit timing characteristic.

2. (Original) The method of claim 1, further comprising providing a reverse uplink receiver beam width of approximately 0.5.degree.

3. (Original) A method of operating a communications system having a forward link and a reverse link, to provide orthogonal CDMA communication in the reverse link, comprising:

transmitting a first pilot signal from a ground station in the forward link direction;

receiving the first pilot signal at a terminal, and recovering carrier phase and modulation chip clock timing therein;

transmitting a second pilot signal from the terminal in the reverse link direction;

comparing, at the ground station, the second pilot signal to a reverse link reference signal;

transmitting, in the forward link direction, a control signal, the content of the control signal based at least in part on the comparison between the second pilot signal and the reverse link reference signal; and

adjusting, responsive to the control signal, at least one operational parameter of the terminal.

4. (Original) The method of claim 3, further comprising transferring signals through a geosynchronous satellite disposed in said forward link and reverse link.

5. (Original) The method of claim 3, further comprising transmitting orthogonal CDMA traffic signals from the terminal.

6. (Original) The method of claim 3, wherein the at least one operational parameter of the terminal comprises transmit timing; and adjusting is performed to maintain the transmit timing of the terminal to within a pre-selected fractional part of a chip period.

7. (Original) The method of claim 6, wherein the pre-selected fractional part is one-eighth of a chip period, or less.

8. (Original) The method of claim 6, further comprising providing a reverse uplink receiver beam width of approximately 0.5.degree.

9. (Original) The method claim 3, wherein the control signal directs the terminal to advance its transmit timing.

10. (Original) The method of claim 9, wherein the transmit timing is advanced by a predetermined amount.

11. (Original) The method of claim 9, wherein responsive to the control signal, the terminal transmit timing is adjusted by an amount specified by the control signal.

12. (Original) The method of claim 3, wherein the control signal directs the terminal to retard its transmit timing.

13. (Original) The method of claim 12, wherein the transmit timing is retarded by a predetermined amount.

14. (Original) The method of claim 12, wherein responsive to the control signal, the terminal transmit timing is adjusted by an amount specified by the control signal.

15. (Original) The method claim 3, wherein the control signal directs the terminal to adjust its transmission frequency.

16. (Original) A terminal, comprising:

means for receiving a first pilot signal;

means for recovering carrier phase and modulation chip clock timing from the first pilot signal;

means for transmitting a second pilot signal from the terminal;

means for receiving a control signal;

means for transmitting an orthogonal CDMA traffic signal, the orthogonal CDMA traffic signal having a first timing characteristic; and

means for adjusting the first timing characteristic in response to said control signal.

17. (Original) The terminal of claim 16, wherein the means for transmitting an orthogonal CDMA traffic signal comprises a geostationary satellite.

18. (Original) The terminal of claim 16, wherein the at least one operational parameter of the terminal comprises transmit timing; and said means for adjusting maintains the transmit timing of the terminal to within a pre-selected fractional part of a chip period.

19. (Original) The terminal of claim 18, wherein the pre-selected fractional part is one-eighth of a chip period, or less.

20. (Original) The terminal of claim 16, further comprising means for providing a reverse uplink receiver beam width of approximately 0.5.degree.

21. (Original) The terminal of claim 16, wherein the means for adjusting the first timing characteristic comprises circuitry for advancing a transmit timing characteristic of the orthogonal CDMA traffic signal.

22. (Original) The terminal of claim 16, wherein the means for adjusting the first timing directs the terminal to advance its transmit timing.

23. (Original) The terminal of claim 22, wherein the transmit timing is advanced by a predetermined amount.

24. (Original) The terminal of claim 22, wherein the means for adjusting the first timing characteristic comprises circuitry for advancing a transmit timing characteristic of the orthogonal CDMA traffic signal by an amount specified by the control signal.

25. (Original) The terminal of claim 16 wherein the means for adjusting the first timing characteristic comprises circuitry for retarding a transmit timing characteristic of the orthogonal CDMA traffic signal.

26. (Original) The terminal of claim 25 wherein the means for adjusting the first timing characteristic comprises circuitry for retarding a transmit timing characteristic of the orthogonal CDMA traffic signal by a predetermined amount.

27. (Original) The terminal of claim 25, wherein the means for adjusting the first timing characteristic comprises circuitry for retarding a transmit timing characteristic of the orthogonal CDMA traffic signal by an amount specified by the control signal.

28. (Original) The terminal of claim 25 wherein the circuitry for retarding a transmit timing characteristic of the orthogonal CDMA traffic signal comprises a clock output connected to a code modulator, and a control input connected to a signal receiver.

29. (Original) A ground station operating in a communications system having a forward link and a reverse link, to provide orthogonal CDMA communication in the reverse link, comprising:

means for transmitting a first pilot signal in the forward link direction;

means for receiving a second pilot signal from at least one terminal in the reverse link direction, and for recovering carrier phase and modulation chip clock timing therein;

means for comparing the second pilot signal to a reverse link reference signal; and

means for transmitting, in the forward link direction, a control signal to control at least one operational parameter of the terminal, the content being based at least in part on the comparison between the second pilot signal and the reverse link reference signal.

30. (Original) A terminal device, comprising:

a processor;

a memory of stored CDMA signal transmit timing characteristic control information coupled to the processor; and

a machine accessible medium, coupled to the processor, having instructions encoded therein, the instructions, when executed by the processor, cause the terminal device to:

receive a first pilot signal;

recover carrier phase and modulation chip clock timing from the first pilot signal;

transmit a second pilot signal;

receive a control signal;

transmit an orthogonal CDMA traffic signal having a first timing characteristic; and

adjusting the first timing characteristic in response to said control signal.

31. (Original) The terminal device of claim 30, wherein the instructions, when executed by the processor further cause the terminal device to provide a reverse uplink receiver beam width of approximately 0.5.degree.

32. (Original) The terminal device of claim 30, wherein the instructions, when executed by the processor further cause the terminal device to advance a transmit timing characteristic of the orthogonal CDMA traffic signal.

33. (Original) The terminal device of claim 30, wherein the instructions, when executed by the processor further cause the terminal device to retard a transmit timing characteristic of the orthogonal CDMA traffic signal.

34. (Original) The terminal device of claim 30, wherein memory is part of the terminal device.

35. (Original) The terminal device of claim 30, wherein the instructions, when executed by the processor further cause the terminal device to adjust a transmit frequency of the orthogonal CDMA traffic signal by an amount specified by the control signal.